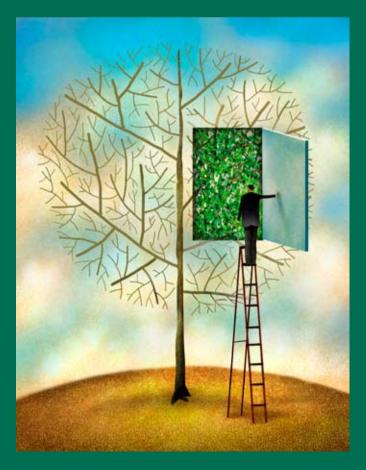


Global Aging

How Companies Can Adapt to the New Reality



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GLOBAL AGING

HOW COMPANIES CAN ADAPT TO THE NEW REALITY

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INTRODUCTION

THE GLOBAL ECONOMY IS in a state of relative turmoil. In most of the developed economies, growth is anemic at best, and the ability of governments to manage both their finances and their debts is being called into question. By contrast, much of the rapidly developing world seems to be powering ahead. Meanwhile, global stock markets are volatile, and companies in virtually all industrial sectors—especially in the developed markets—are wondering how best to cope with all the uncertainty.

Amid these challenges, there is a tendency to downplay a phenomenon that has contributed to some of today's problems and that could exacerbate some of the present risks in the future: the aging of our societies. Global aging will put significant pressure not only on corporate growth and productivity but also on national pension, health-care, and welfare programs—as well as overall economic stability. The difficulties it will present are fundamental and far-reaching. Companies, governments, and private individuals will therefore have to deal in a structural way with the new reality caused by a global population that is becoming increasingly skewed toward retirees and senior citizens.

Yet there is a critical question: Does global aging represent just a risk or also an opportunity?

The answer, of course, depends on understanding the trend in depth and reacting effectively. Changing demographic patterns present sizable risks to companies, governments, and society as a whole. Yet opportunities will also be created across virtually all industries and regions. The first step is simply to recognize that major demographic change is coming and that it needs to be prepared for.

In this report, we show how the aging of societies will affect labor dynamics, GDP growth, the availability of capital, and consumer needs—all of which will influence corporate strategies.

We also address the steps that companies must take to adapt to the new climate. Amid a great deal of macroeconomic and financial market uncertainty, one thing remains clear: only those organizations that proactively prepare for the demographic shifts to come will be able to meet the challenges and capture the opportunities.

THE IMPACT OF AGING ON THE GLOBAL ECONOMY

In coming decades, many forces will shape our economy and our society, but in all likelihood no single factor will have as pervasive an effect as the aging of our population.

— U.S. Federal Reserve Chairman Ben Bernanke (October 4, 2006)

THE AGING OF THE world's population is a megatrend that will shape the global economy and global society for decades to come. As the percentage of people aged 65 and over continues to grow and the relative proportion of 15-to-64-year-olds shrinks, companies in virtually all industries will be forced to react.

A look at a few major economies provides a brief illustration of the dynamics in play. In Germany today, there are roughly 54 million people in the 15-to-64-year-old workforce-age segment. By 2050, that number is projected to fall to an estimated 41 million. China's workforce-age population has grown by more than 100 percent since 1970. Over the next 40 years, it will shrink by about 19 percent. In the U.S., roughly 41 million people are of retirement age today. That number will soar to some 72 million by 2030, an increase of about 1.6 million retirees per year.

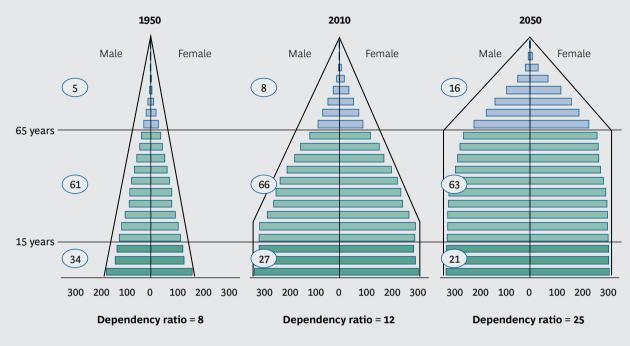
Globally, the dependency ratio, which measures the number of people aged 65 and older for every 100 people of workforce age, rose

from about 8 in 1950 to 12 in 2010—and will further rise to an estimated 25 by 2050. Most dramatically, in Japan the dependency ratio will rise from roughly 33 today to 65 by 2050. As a result, the demographic structure that has looked like a pyramid for centuries will increasingly look more like a house. (See Exhibit 1.)

The basic forces behind the demographic shift are simple: people are living longer and having fewer children. (See Exhibit 2.) In the developed countries, the average life expectancy increased from about 66 years in 1950 to roughly 78 years in 2010. Over the same time period, fertility rates (measured as children per female) fell from 2.8 to 1.7. Given that a fertility rate of 2.1 indicates a stable population, it is evident that, excluding the effects of immigration, populations in the developed world are declining.

Rapidly developing economies (RDEs) are seeing their life expectancies and fertility rates approach those in the developed countries. The life expectancy in many RDEs in 1950 was about 40 to 45 years—roughly equivalent to that in the G-7 countries (Canada, France, Germany, Italy, Japan, the U.K., and the U.S.) in 1900. By 2010 it had increased significantly to between 65 and 75 years, while the average family size shrank sharply. China, for its part, has seen fertility rates drop below those of some G-7 countries

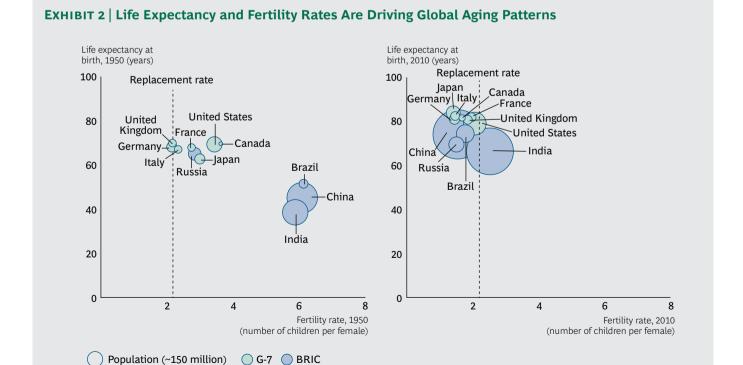




Percentage of the population

Sources: United Nations, World Population Prospects: The 2010 Revision; BCG analysis. Note: The dependency ratio is the number of people aged 65 and older for every 100 people in the workforce age segment.

Sources: United Nations, World Population Prospects: The 2010 Revision; Gapminder; BCG analysis.



as a consequence of its one-child-per-family policy, which reduced births by an estimated 400 million between 1979 (when the law was enacted) and 2010. Today, this law is facing increasing challenges.

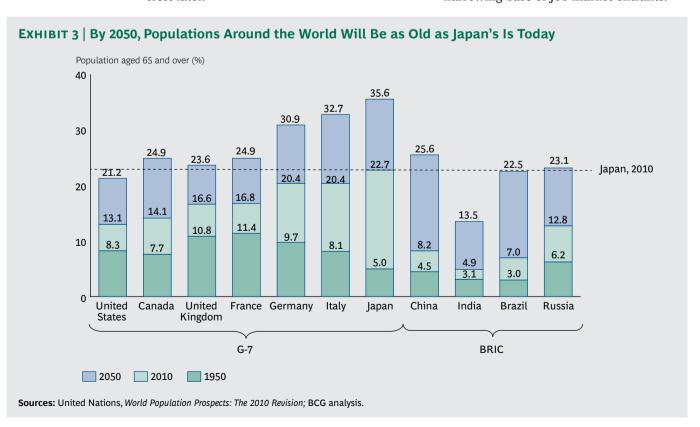
Global aging is not just about the retirement of baby boomers in the U.S. and Europe.

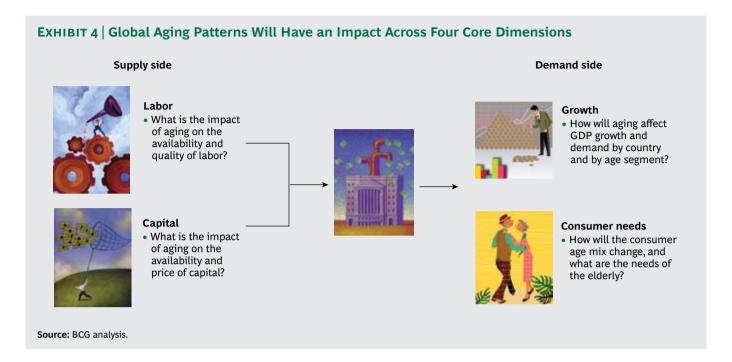
Fertility rates have also dropped in other BRIC nations, with rates in Russia and Brazil currently about the same as those in the industrialized countries. In India, the fertility rate stands at about 2.5—down significantly from about 5.0 in 1975. By 2050, including immigration dynamics, nearly all developed and large developing economies will have populations as old, or nearly so, as Japan's is today. (See Exhibit 3.) The notable exception is India, whose aging trend will crest later.

The specific reasons why people are living longer and having fewer children vary among countries and societies. They include better health care, marrying later in life, the availability of contraception, economic uncertainty, and the fact that more women are postponing motherhood for career reasons. Overall, the world's population is expected to reach a path of very slow growth by about 2050.

Ultimately, we are witnessing an unprecedented fundamental shift in the global demographic structure. Global aging is therefore not just about the retirement of baby boomers in the U.S. and Europe, nor does it represent a temporary bubble. The trends in motion represent the development of a new demographic equilibrium that will have social, political, and economic ramifications. The effects on companies in all major industries will be substantial along four core dimensions—on both the supply and demand sides. (See Exhibit 4.)

 Labor. Companies will have to optimize the productivity of an aging workforce and source sufficient new talent from a narrowing base of job market entrants.





- Growth. Aging, through lower workforce growth, will have a profound impact on GDP growth. Many developed countries will face long-term GDP growth rates of between 1 and 2 percent. Yet GDP growth will remain strong in many RDEs, and the "two-speed world" will become even more pronounced.
- Capital. Global aging will affect global capital markets in terms of both the demand for capital (the level of investment required to fund GDP growth) and the supply of capital (savings rates). Companies should be prepared for fundamental changes in the decades to come.
- Consumer Needs. Companies will be under increasing pressure to develop products and services to meet the specific needs of the 55-and-over "silver segment," which will account for more than half the consumer-spending growth in developed markets over the coming decades.

Dealing with these challenges requires companies to forge a robust strategy now. In the following sections, we will examine each of the above core dimensions in greater detail, exploring the steps that companies should take to successfully navigate the upheavals that global aging will present—as well as capture the opportunities that will arise.

LABOR THE NEW PERSPECTIVE

THE GROWTH RATE OF the workforce-age segment in the U.S., the U.K., France, and Canada has slowed significantly. In the other G-7 countries—Japan, Germany, and Italy—the size of the workforce-age segment has actually started to shrink. China's workforce will likely start to decline around 2015, Brazil's in 2030, and India's in 2050. Russia's workforce began to shrink in 2010.

Tapping the full potential of older workers will become critical.

What is more, the composition of this workforce is starting to change substantially. On a global level, the proportion of people in the working-age population who are 50 years of age or older will grow from 20 percent in 2010 to 30 percent by 2050. (See Exhibit 5.) In addition, since fewer people may be able to retire early, the participation rate of this segment will increase. The trend toward an older workforce can already be observed at many companies. For example, the German automaker BMW expects that about 40 percent of its workforce will be over age 50 by 2020, compared with only 22 percent in 2010. At Boeing, more than 55 percent of

the company's engineers are already age 50 and older.

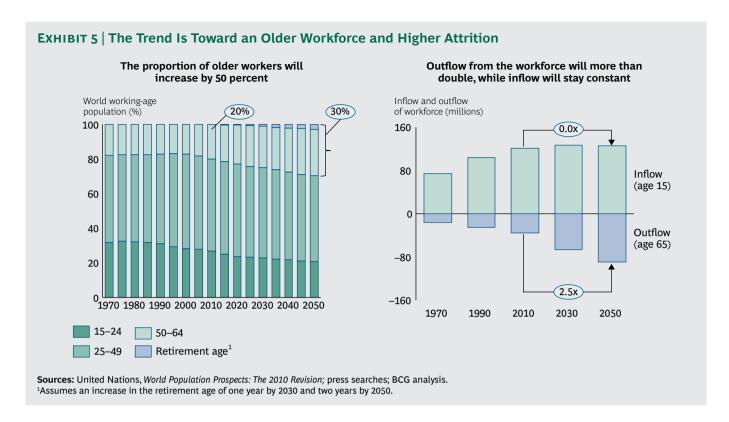
At the same time, companies will have to deal with increasing attrition. Although the annual number of people reaching working age globally will remain roughly constant until 2050, the number of people reaching retirement age is set to more than double. This global trend is most evident today in the G-7 countries.

A Shifting HR Paradigm

Older workforces and scarcer labor will lead to two principal challenges: maintaining high productivity and ensuring sufficient labor availability.

Tapping the full potential of older workers will become increasingly critical. Companies must find ways to make the workplace "age friendly" (especially with regard to physically demanding jobs), promote fitness and health consciousness in order to minimize absenteeism, and maintain motivation as people advance in their careers.

Obviously, any notion that some older workers are better paid but less productive than younger, lower-salaried staff is controversial from a social, political, and economic standpoint. Indeed, in many countries, older work-



ers are sometimes coerced into retiring when they become "too expensive." And while there is clear evidence that productivity can decline in physically demanding jobs (such as manufacturing) and even in service sector jobs, it is crucial to note that older workers can actually be more productive than their younger counterparts owing to their deep experience. Taking advantage of their skill set will require that companies figure out how to position older workers in jobs that keep them engaged and that make the most of their talents.

As for the labor capacity challenge, outflows from the workforce will both increase the competition for talent and raise the importance of knowledge transfer. Globally, in 2010, there were roughly 0.3 people retiring for each person entering the workforce; by 2050, that number will be 0.7. For G-7 countries, the numbers are more worrying—increasing from 0.8 retirees in 2010 for each person entering the workforce to an expected 1.0 by 2050. This unprecedented outflow of human capital will require significant capacity planning and transfers of expertise on a massive scale. Especially challenging will be the transfer of "intangible" know-how, the day-to-day resourcefulness that can come only with years of experience.

Ultimately, the combination of a generally older workforce and disproportionate levels of retirements will require material changes in corporate human-resources paradigms.

In terms of productivity, changes from the norms of today will include the following:

- Today, older workers' productivity is generally assumed to decline. In the future, retaining older workers and investing to maintain their productivity through new training, workplace adaptation, and internal transfers—will become a source of competitive advantage.
- Today, job mobility is typically upward in direction. In the future, careers will be more likely to progress horizontally—for example, to an advisory position—or downward to a less demanding post with a lower salary.
- Today, salaries generally increase with age (seniority), potentially making older workers less attractive for employers. In the future, performance-based compensation independent of age will become more common.

Similarly, in terms of workforce capacity, changes will include the following:

- Today, there is an adequate supply of qualified employees for most job categories. In the future, qualified employees for many positions will become scarcer, intensifying the competition for top talent and increasing labor costs.
- Today, older workers are offered earlyretirement incentives so that cheaper labor can be hired in their place. In the future, companies will do their best to retain older workers through a variety of incentives, including jobs with more time flexibility and new advisory positions.
- Today, HR requirements generally cannot be accurately estimated more than two to three years in advance. In the future, HR requirements will have to be planned five to ten years in advance and will have to be carried out on a detailed level of "job families" and required skills.

Companies that approach productivity and capacity issues as an opportunity—for example, to get the most out of older workers' know-how and experience—will be best positioned in a market where labor is increasingly scarce.

Bolstering Workforce Productivity, Capacity, and Talent

Addressing the productivity challenge begins with determining exactly where productivity is falling short and analyzing the causes. Companies need to take steps to truly *understand* the factors that can potentially limit the performance of older workers, and then develop appropriate solutions.

One key step in avoiding lower performance levels is to identify jobs that may be difficult for some older people, such as those involving rigorous physical activity. Companies can then take palliative measures through such means as ergonomics, tandem jobs, or simply finding a related but less physically demanding position within the company. Companies can also identify job classes in which motiva-

tion for older employees may be an issue, and rethink the career paths that are offered. Doing so can enable them to retain valuable, highly experienced employees who are still doing good work and can impart their knowledge to younger colleagues. (See the sidebar "Addressing Productivity and Workforce-Capacity Issues.")

Of course, older workers will retire eventually, and this outflow must be planned for and strategically managed. The expertise that will be "walking out the door" can be extremely difficult to replace, making it essential to take concrete steps to prevent gaps in workforce capacity.

In the future, qualified employees for many positions will be scarcer, intensifying the competition for talent.

One effective and proven method is to define skill "clusters" based on employee capabilities and past experience. Simulations can then be run for both the number of employees demanded (on the basis of the overall business strategy and objectives) and the supply of employees (on the basis of retirement and attrition forecasts), allowing future gaps for each job function or job family to be readily identified. Companies can then adopt appropriate measures such as targeted recruiting, internal transfers, training initiatives, and outsourcing or insourcing programs.

Companies also need to introduce talent management initiatives to cope with the coming scarcity in qualified labor in many industrial and service sectors. Competition for top talent will become ever fiercer, and, with continuing corporate internationalization, increasingly global. It is therefore critical for companies to adopt a global mindset and take a strategic approach to talent planning and management—rigorously evaluating

ADDRESSING PRODUCTIVITY AND WORKFORCE-CAPACITY ISSUES

Although many large enterprises around the world have yet to fully grasp the impact of aging patterns on their labor forces, some companies, including those mentioned below, have been early movers both in understanding the issues and in taking action. Some are even becoming known for their aging-related initiatives. In the U.S., for example, AARP (formerly the American Association of Retired Persons) hosts a website highlighting companies that have modified their workplaces and HR policies to attract the over-50 demographic.

At BMW, Designing Production Lines to Facilitate Healthy and Productive Aging. The German automaker BMW was determined to proactively face the challenges of an aging workforce. In order to identify potential difficulties and devise ways to mitigate them, the company set up a pilot project—staffing a production line in its Dingolfing plant with a group of workers whose average age was 47, which was the forecast average age for the plant's workers in 2017 (eight years older than the average age in 2007).

As part of the project, the company's ergonomic specialists, human-resources personnel, and physicians collaborated with employees, who had been asked by managers to suggest ways to improve working conditions. Most of the proposed changes were quickly adopted. They included the following:

- New equipment such as special ergonomic chairs, magnifying lenses, and wooden flooring
- Job rotations across workstations to minimize fatigue

Development of special stretching exercises to compensate for physical strain during work hours

With only a minimal investment by the company, the results were impressive. The "older" production line maintained the same level of productivity as other lines and achieved even better quality than comparable lines. Absenteeism was not significantly higher. Similar pilot projects have followed under the slogan "Today for Tomorrow."

When setting up a new production facility in the Dingolfing plant in February 2011—a €20 million investment—BMW integrated the findings from the pilot projects. This initiative made the new facility the first in the automotive industry that was designed from the start to address the issue of aging workforces. BMW's aim is to facilitate good health and optimal working conditions for all employees, both younger and older.

At CVS Caremark, Leveraging Warm Weather to Retain Older Workers. In an effort to ease the working atmosphere for older workers, leading U.S. pharmacy chain CVS Caremark has a "snowbirds" program that enables employees to transfer to warmer, sunnier climates during the winter months. The initiative has been a clear success. Stores in warmer states such as Florida have the capacity to take on extra staff during the winter months because business is typically stronger at this time of year. Hiring older people to work in these stores also makes good business sense, CVS has said, because they often have an excellent work ethic and, just as important, they can relate better to CVS's older customers.

their talent-management strategy, tapping new channels and regions, identifying and assessing currently employed talent, grooming and promoting on the basis of merit rather than seniority, and making the investment necessary to keep their best people.

GROWTH

THE CHALLENGES OF AN OLDER POPULATION

ANY OBSERVERS ARGUE THAT Japan, with GDP growth of just over 1 percent from 1990 through 2008 (largely preceding the global financial crisis), experienced two "lost decades" because it could not find its footing following the market crash that it experienced in 1989. Low GDP growth in recent years in Europe (compared with that in the U.S.) is often attributed to more rigid market dynamics in Europe.

However, when we separate the overall growth of GDP into the growth of the working-age population—a function of aging patterns—on the one hand, and productivity growth on the other, the picture changes.

The U.S. has seen extremely stable productivity growth since as far back as 1960.

The U.S. and Canada experienced significant growth in their working-age populations from 1990 through 2008, whereas Europe's workforce barely expanded—and Japan's even shrank. Yet productivity growth has been remarkably similar across the three regions,

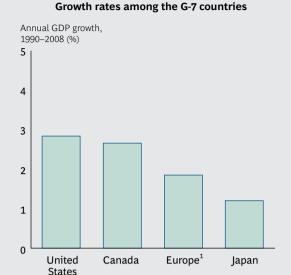
at annual rates of between 1.4 and 1.8 percent. (See Exhibit 6.) Indeed, the most competitive large economy in the world, the U.S., has seen extremely stable productivity growth in this range since as far back as 1960. The U.S. productivity level, which has advanced steadily as technology has developed, largely represents what is known as the technological frontier.

Economies that are below this productivity level can expand GDP faster as they move toward the technological frontier. Japan did so until the mid-1970s, when it reached the same productivity level as that in the U.S. Since then, Japan's productivity growth has been roughly the same as U.S. productivity growth.

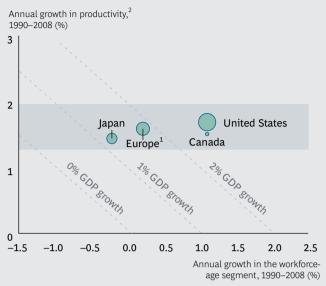
Of course, RDEs can enjoy high productivity increases until they reach a certain GDP per capita, and many have done so. China, in particular, has registered huge productivity gains, and as a result its overall GDP growth has dwarfed that of not only the G-7 countries but also other RDEs. (See Exhibit 7.)

In future decades, RDEs will continue to fuel the engine of global growth as they try to narrow the productivity gap with mature economies. But both developed and developing economies will be hit by the demographic dynamics that will negatively affect workforce growth.





Workforce growth versus productivity growth



2008 GDP³ (~US\$5 trillion)

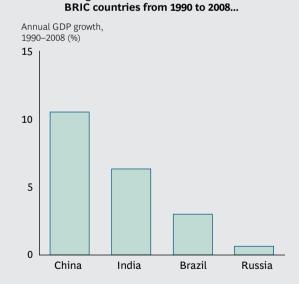
Sources: United Nations, World Population Prospects: The 2010 Revision; World Bank; BCG analysis.

¹France, Germany, Italy, and the United Kingdom.

²We define productivity as GDP divided by the size of the 15-to-64-year-old workforce-age segment.

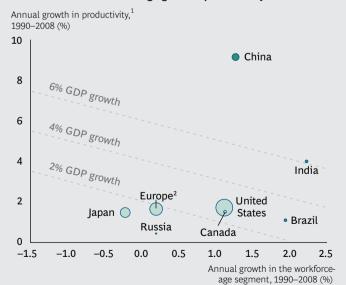
³Measured in constant (2000) U.S. dollars.

EXHIBIT 7 | China's GDP Growth Has Been Driven Mainly by Productivity Growth



China grew much faster than the other

...thanks to huge gains in productivity



2008 GDP³ (~US\$5 trillion) BRIC G-7

Sources: United Nations, World Population Prospects: The 2010 Revision; World Bank; BCG analysis. ¹We define productivity as GDP divided by the size of the 15-to-64-year-old workforce-age segment.

²France, Germany, Italy, and the United Kingdom.

³Measured in constant (2000) U.S. dollars.

Future GDP Growth and the Declining Workforce

Lower growth in the 15-to-64-year-old work-force-age segment in the future will have a negative impact on GDP growth around the world, with significant consequences for companies in all industries. In the G-7 countries, declines of as much as 0.8 percentage point in the annual rate of workforce growth, relative to the annual rate of workforce growth from 1990 through 2008, will dampen estimated GDP growth from 2010 through 2050. This forecast includes the potential impact of such factors as expected increases of two years in the average retirement age, more working women postponing families, and immigration dynamics.

In the RDEs, the effect will be even more pronounced: the annual rate of growth in the workforce-age segment will drop by 1.7 percentage points in China and Brazil and 1.3 percentage points in India.

The trend of economic polarization—the two-speed world—will become even more pronounced.

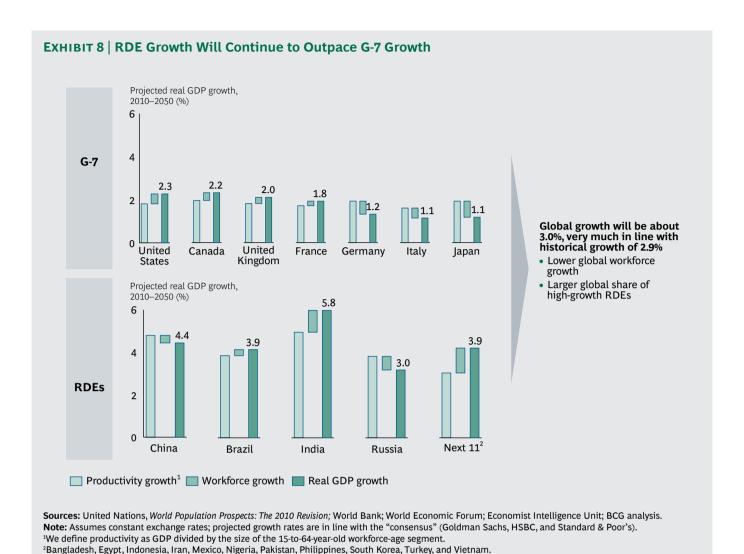
Clearly, potential increases in productivity through technological advancements, process optimization, efficiency improvements, and the like—can help offset negative demographic effects. This is true in both mature and developing markets, although RDEs generally have a greater potential for these types of gains because they are farther away from the technological frontier. To assess future productivity growth in either RDEs or more mature markets, it's necessary to gauge their distance from this frontier-those with lower productivity levels can in theory grow faster—and then to consider the competitiveness level of each country, because more competitive economies can expand faster as well.

Looking ahead, China should continue to lead most other countries in terms of productivity growth (at 4.8 percent per year through 2050), but it is not likely to maintain the soaring levels of recent decades. If China's productivity were indeed to grow at this 4.8 percent rate in the four or so decades to come, it would take the path that South Korea's productivity followed in the four or so decades past. This is an interesting comparison given that South Korea had a wealth level (defined as real GDP per capita) in 1970 roughly equal to China's today. South Korea was the clear global leader in productivity growth from 1970 to 2010 for economies at its level of wealth.

Ultimately, with total GDP growth a function of both workforce growth and productivity growth, it is evident that the trend of economic polarization—the two-speed world—will become even more pronounced. Growth rates in many developed countries will likely remain low, while those in many RDEs should remain at relatively high levels. (See Exhibit 8.) With the high-growth countries constituting an ever-growing share of the global economy, overall global GDP growth will likely continue to be about 3 percent, slightly higher than in recent years, despite the negative demographic effect.

Exactly what would be needed to offset the effect of these demographic shifts? Unfortunately, there is no silver bullet. As an example, take Germany, a country in which aging has already had a large impact on growth over the period 1990 to 2008. In order for Germany to maintain its current GDP growth rates through 2050, at least one of the following would need to take place:

- A Higher Fertility Rate. Germany's fertility rate would have to increase from 1.4 births per female today to 2.9 by 2020. The impact on GDP growth would not begin to materialize until after 2030.
- Higher Immigration Rates. About 300,000 net immigrants per year would be required for the next 40 years (compared with just 13,000 in 2009). Of course, these immigrants would also retire at some point.



- A Higher Retirement Age. The retirement threshold would have to increase to 79 years of age by 2050, with no decline in productivity levels.
- Higher Productivity Growth. Productivity growth would have to increase to 2.3 percent per year, significantly higher than the 1.8 percent average annual growth of the past decades and requiring a shift in the technological frontier.

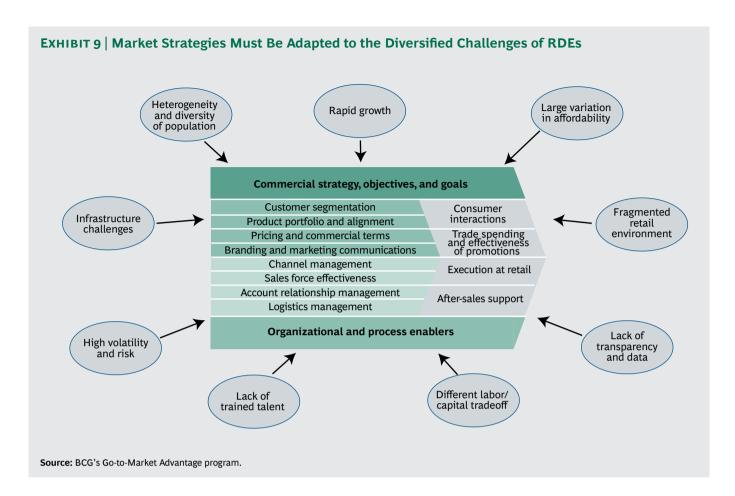
Capturing Growth in an Aging World

Among the many actions that companies can take to seize growth opportunities in an aging world, perhaps the most important is to enhance their presence in high-growth countries. But market strategies that work at home will have to be adapted to the nuances of

RDEs, where challenges such as infrastructure quality, a fragmented retail environment, and highly diversified consumer tastes and demands can be daunting. (See Exhibit 9.)

Market strategies that work at home will have to be adapted to the nuances of RDFs.

A second priority is to search for pockets of growth in mature economies. Overall growth rates in the developed markets may decline, but it is possible to find consumer segments in these markets that are growing more rapid-



ly or that are underserved. The most obvious is the 55-and-over "silver segment," which we will address later in this report. Others also exist. In Japan, for instance, some companies have started to target the growing segment of young, single, working women. Also, certain industries, such as health care, will be poised for strong growth as populations age. (See the sidebar "Addressing Growth Opportunities in an Aging World.")

Last, given that aging patterns will hinder growth and put pressure on financial performance in mature markets, companies will need to move toward leaner business models. This should be an ongoing initiative that will require companies to continually find new ways to reinforce margins, maintain competitiveness, cut costs, optimize processes in order to raise quality, deliver value less expensively to customers, and enhance flexibility.

ADDRESSING GROWTH OPPORTUNITIES IN AN AGING WORLD

Companies such as those below have taken measures to seize the opportunities that an aging world presents in terms of economic growth.

At Philips, Paying Attention to Megatrends.

Some ten years ago, Philips set out to manage its growth profile by explicitly prioritizing megatrends such as the rise of RDEs as professional and consumer markets, the need for energy efficiency, and the growth in demand for health care.

Since then, Philips has divested many of its noncore businesses, such as semiconductors and electronic components, and has made a series of acquisitions in health care, including some targeted acquisitions aimed at the elderly age group. This strategy has paid off, with the company's health-care sector showing resilience in a tough market, posting higher revenues and healthy margins. In addition, the company has vigorously pursued sales growth in the developing world. The proportion of total sales originating in RDEs stands at about 33 percent (as of the second quarter of 2011).

At Allianz, Investing Demographically.

Allianz, the German insurer and financialservices company, has launched an equity fund that seeks to benefit from long-term demographic patterns. Recognizing the differences between low-growth markets in which the population is heavily skewed toward older people and some high-growth markets in which the population may be somewhat younger, the fund seeks to invest in companies that are best positioned from a demographic standpoint.

For example, in markets with a high proportion of senior citizens, the fund targets investments in health care, certain types of cosmetics, and financial services geared toward retirees. In markets where the population is slightly younger, investments are skewed toward companies catering to those age brackets. The fund takes the perspective that "future investment and consumer trends of countries and regions can be predicted with a fair degree of accuracy on the basis of current birth rates and advances in life expectancy."

CAPITAL

DEMAND, SUPPLY, AND THE RETIREMENT DILEMMA

S WE HAVE SHOWN, the impact of global aging on workforce and GDP growth is relatively clear in terms of direction. The impact of aging on capital, another scarce resource for companies, is less certain because so many factors influence capital demand and supply and thus the equilibrium interest rates that underpin capital costs for companies. Still, the impact of aging could turn out to be a strong long-term driver of capital demand and supply—albeit one that is difficult to predict. As a result, all companies, especially those in the financial services industry, should prepare themselves for various scenarios that global aging could help precipitate.

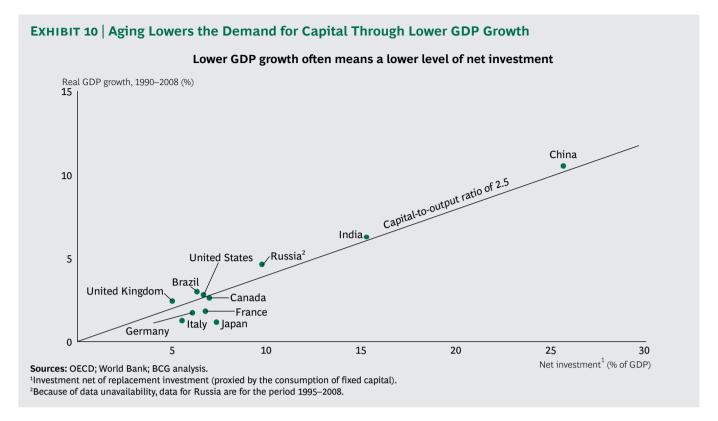
The impact of aging on the demand for capital—the amount of capital that households, companies, and governments require for investment—is fairly clear-cut. Owing to slower population growth in the developed world, the demand for new houses and infrastructure will decline, and with it the demand for capital. Also, as GDP growth slows, lower levels of investment will be required, and capital demand as a percentage of GDP will fall. (See Exhibit 10.)

The impact of aging on the supply of capital—basically, the money available for investment, represented by the savings of households, companies, and governments—is more ambiguous. Some observers have

argued that global aging will lead to *reduced* savings rates as the percentage of retirees (dissavers) increases and the percentage of workers (savers) declines. Yet this assessment ignores the likelihood that a meaningful portion of global society will adjust to the new reality—particularly with regard to retirement and health-care benefits—and increase their personal savings either of their own volition or in response to government incentives to prepare for the future.

Overall, a well-documented storm is brewing concerning retirement and health-care benefits for people 65 and over. Indeed, in many countries in the developed world, social security systems were set up in the 1950s on the basis of the demographic pyramid of that era. Current workers paid for current retirees. These so-called pay-as-you-go (PAYG) systems, which covered both retirement and health-care costs, worked well in a time of low dependency ratios. But with much higher dependency ratios anticipated in the future, they will not be sustainable.

Very broadly, there are three scenarios for dealing with the increasing cost of old age and health care, the key question being "Who will pay the bill?" In the first, "our children"—the offspring of current workers—will contribute heavily to our retirement. In the second, the burden will be passed to our grandchildren through government borrow-



ing. In the third, we ourselves (current workers) will have to bear more responsibility for funding our retirement than did past generations.

Let's look at each scenario more closely.

Our children pay. Existing PAYG pension systems stay intact, current benefit levels are maintained, and the next generation makes far steeper contributions to our retirement and health-care benefits than we did for our parents.

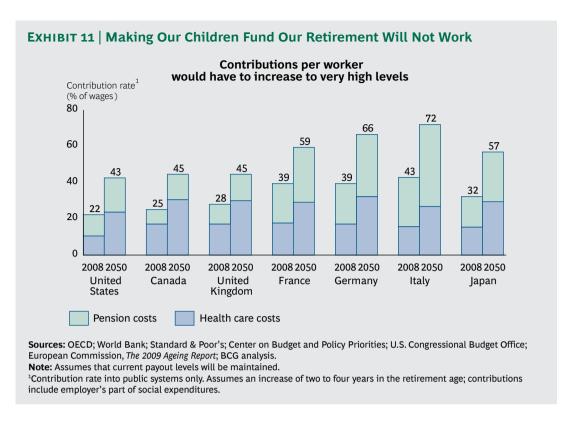
At today's benefit levels, government debt could rise as high as 500 percent of GDP by 2050.

This scenario seems unrealistic because the contributions of the next generation into national social-security systems would be truly burdensome—between 40 and 75 percent of their wages, not counting contribu-

tions into private health-care and pension systems. (See Exhibit 11.) Labor participation might even decline as the benefit of working becomes far less attractive.

Our grandchildren pay. Existing PAYG pension systems would remain intact, but they would be funded largely by government borrowing, thereby deferring the problem and leaving the bill to be paid by our grandchildren.

This scenario seems as unlikely as the first, for the principal reason that net government debt would have to rise to unmanageable levels. Assuming constant benefit levels, some estimates show that government debt could rise to between 300 and 500 percent of GDP in some G-7 countries by 2050. Indeed, rating agencies and international policymakers are already urging countries to rein in debt. Standard & Poor's has estimated that more than 50 percent of sovereign debt globally will eventually be rated at speculative grades if current health-care and pension benefits are maintained.2 The downgrade by Standard & Poor's in August 2011 of long-term U.S. debt illustrated the depth of the uncertainty about whether large governments can effectively manage their finances.



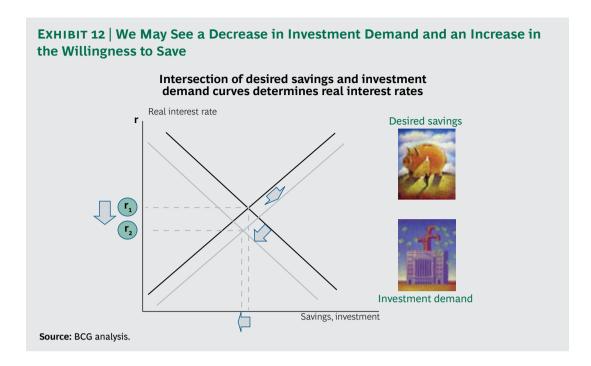
We ourselves pay. If neither of the first two scenarios is sustainable, that leaves only one more choice: placing the burden on the current generation of workers. This will be the dominant scenario. True, our children may pay somewhat more than we have into national retirement schemes. And governments may resort to extra borrowing to shift part of the burden to our grandchildren (as many are doing today). But the current generation of workers will likely have to make the biggest adjustment, which can essentially be done in three ways: working longer, saving more, and potentially accepting a lower standard of living in retirement. The likely outcome will be a combination of these approaches—with the result that middle-to-high-income people will start to save more, and many low-income people unable to save more will be forced to work longer and accept a somewhat lower standard of living.

Many governments are already in discussions about raising retirement ages, and some are also weighing incentives and mandates to bolster private savings. Australia, Canada, Germany, the U.K., the U.S., and many others have either taken steps in this direction or at least announced their intention to do so. In

the U.K., for instance, the National Employment Savings Trust (NEST)—a pension scheme into which all workers 21 years of age and older without an existing pension plan will be automatically enrolled—is to be established by 2012. In Australia, employers are currently obliged to contribute an additional 9 percent of employee salaries and wages into a superannuation fund. And Canada is pursuing federal and provincial pension reform to create a pooled retirement plan that would offer a retirement savings option for individuals without employer coverage.

All of the above factors lead to the conclusion that in the developed world, we could ultimately see a decrease in investment demand accompanied by an increase in the willingness to save at any given interest rate.³ In the new equilibrium, interest rates would likely be lower. (See Exhibit 12.)

Although no two situations are identical, it is worthwhile to compare this scenario with what happened in Japan two decades ago when its workforce started to shrink. Real interest rates declined substantially, accompanied by a reduction in capital demand (investment). Capital supply (savings) also declined as real interest rates fell, but by less than



the decline in investment because capital was also exported to other countries.

Today, however, abundant capital from the developed world is unlikely to be exported to RDEs, which are already net exporters of capital (with savings levels even higher than their substantial investment levels). If RDEs maintain a savings surplus (as a percentage of GDP) equal to current levels, they would further add to any relatively large global capital supply.

We can therefore picture a scenario of relative abundance of capital in the developed world—an increase in capital availability of 1 to 2 percent of GDP annually between 2010 and 2020-with RDEs unlikely to absorb the excess.

One result of such conditions—with so much money looking for a "place to sit" or chasing too few attractive assets—might be market volatility and speculative bubbles. The types of assets most likely to be affected would be real estate, commodities, "growth" companies, and other assets not valued on the basis of current cash flows as a good reference point for their value.

But the most significant result of such a scenario would be prolonged low real interest rates.

Of course, the question is not only what will happen to real interest rates but also what will happen to nominal rates. The answer requires a view on inflation. Clearly, aging patterns and resulting higher government debt could prompt governments and central banks to increase the money supply, potentially creating high inflation. But this scenario is far from certain given varying governmental approaches on monetary policy and other factors. Indeed, a wide range of outcomes is possible.

Ultimately, companies in all sectors must plan for a continuation of today's low-realinterest-rate environment as well as a potential high-inflation scenario. More broadly, they must prepare for a capital environment that is constantly evolving in many different ways. (See the sidebars "Living with an Uncertain Capital Climate" and "Addressing Capital Issues.")

1. The GDP projections described earlier correspond to reductions in the demand for capital as a proportion of GDP of about 1 percentage point—technically, a downward shift in the demand curve of 1 percent of GDP at any given interest rate. In the U.S., for example, the reduction in capital demand would amount to about \$150 billion annually over the next ten years, compared with the level of recent decades.

- 2. See "Global Aging: An Irreversible Truth," Standard & Poor's Quarterly, Spring 2011.
- 3. Although it is difficult to predict the ultimate impact of decisions by governments and individuals on the overall capital supply as a proportion of GDP, the most likely outcomes, according to rudimentary calculations, will range between a decline of up to 1 percentage

point (if savings behavior is not affected at all) and an increase of 2 percentage points (if many more people start to save). For our analysis, we have assumed a middle scenario of an increase of 0.5 percentage points in the capital supply—technically, a shift in the capital supply curve of 0.5 percent of GDP at any given interest rate.

LIVING WITH AN UNCERTAIN CAPITAL CLIMATE

A period of prolonged low interest rates—while benefiting many industries by making borrowing cheaper—could have a serious impact on insurance companies, banks, and other types of organizations that invest either on their own behalf or on the behalf of others. Insurers and banks should therefore consider how to navigate through such a period successfully, adapting to the low-rate environment and even using it to gain an edge over rivals. At the same time, they should prepare for high inflation combined with low real interest rates—a scenario that could occur in some markets.

Insurers. Low nominal interest rates can cause huge difficulties for life insurers (and, similarly, for pension funds and asset managers). First, there can be serious problems with high-guarantee products sold in the past (when rates were higher) that have not yet matured. Insurers could struggle to match these guarantees in what they call their "in-force books." Japan had this experience in the 1990s, resulting in the failure of eight insurers between 1997 and 2001. Ten million policies, representing about 10 percent of Japan's life-insurance market, were affected, and the sector as a whole lost \$11 billion in 2001 alone.

When real returns are low and inflation is higher, guarantees are easier to meet. But there is still an issue for clients who receive the nominal returns promised to them but not the commensurate buying power.

Moreover, it is a major challenge to sell new products when guaranteed rates of return are extremely low, with many consumers preferring more flexible investments such as savings products from banks that offer the ability to reinvest when market conditions warrant. For their in-force books, insurers can take steps to mitigate the negative effects of a prolonged low-real-interest-rate environment, potential asset bubbles, and inflation uncertainty. They can invest more in asset classes such as infrastructure that are less vulnerable to speculative bubbles and can provide some inflation protection. And they can use financial instruments such as swaps and hedges to protect against downside macroeconomic risks.

To keep new business sales robust, insurers may have to rely more on their core activity: managing major risks for customers. Obviously, all products—such as those involving mortality risk (early death), longevity risk (outliving assets), and investment risk (low or negative returns)—need to be designed on the basis of various macroeconomic scenarios that could unfold.

Products with inflation-linked guarantees could become particularly attractive because they provide customers a guarantee on buying power, which is critical in times of high inflation. At the same time, these products protect insurers against periods of deflation.

Banks. When interest rates are low, banks generally have very low margins on plain-vanilla savings products, so the challenge becomes one of making higher returns on the asset side of their balance sheets—their loan books.

Today, as some banks are deleveraging, high interest rates can still be charged for loans in many markets. However, if the demand for mortgages and loans is less than the capital supply in the future, competition for a shrinking lending market may well heat up again. Additionally, large

corporations may bypass banks and go directly to the capital markets to meet their funding needs less expensively.

In a competitive lending environment, sophisticated risk-management tools become a crucial element of success. Identifying high-risk customers will help differentiate the winners from the losers. In

light of so much uncertainty about interest rates, banks should assess areas of vulnerability, particularly with regard to any mismatches in the duration of their assets and liabilities—and they should consider trying to shift their business model from one built on spreads to one in which fees play a more prominent role.

ADDRESSING CAPITAL ISSUES

Some companies, such as those described below, have taken steps to deal with a changing capital environment.

At APG, Searching for Stability. APG Asset Management—the world's largest fiduciary manager, with more than €270 billion in assets under management—has embarked on a search for long-term, stable-cash-flow investments that could provide its clients— Dutch pension funds—a natural hedge against inflation and asset bubbles.

A few years ago, APG began investing equity in infrastructure projects such as water companies in the United Kingdom and toll roads in France, Also, in 2010, APG announced an equity participation, on behalf of a client, in a fund that invests in modern fiber networks and radio masts for mobile communications. This fund, the Communication Infrastructure Fund (CIF), aims to own a modern fiber network within ten years that would enable it to offer services to telecommunications companies. APG is currently looking for new infrastructure projects and is offering to invest equity in tunnels, toll roads, and wind parks.

Moreover, APG has started to provide utilities and utility-like companies in Europe with long-term, euro-denominated, inflation-linked debt. Such companies qualify for this debt category because they own long-lived, tangible, fixed networks that provide them with domestic or regional

monopolies. They are generally permitted by regulators to adjust their tariffs for inflation annually. APG has also made inflation-linked debt available to infrastructure projects, including greenfield investments, that offer acceptable real returns. Overall, APG has provided inflation-linked debt to more than a dozen companies.

Given the sizable capital-expenditure programs in progress across Europe in regulated electricity networks and gas grids—as well as in toll roads—it is clear that there will be a huge funding need. This need, in turn, will offer excellent opportunities for long-term, stable-cash-flow investments.

At Skanska and Innisfree, Teaming Up with a County Government. Skanska, the Swedish construction company, and Innisfree, the British infrastructure-investment group, have teamed up with Stockholm County for a long-term health-care investment.

In a further example of a public-private partnership—which can help investors looking for long-term, stable investments to obtain reliable returns, as well as help public entities spread their costs over time and avoid having to make large investments—Skanska and Innisfree are building the New Karolinska Solna University Hospital in cooperation with Stockholm County. The arrangement includes financing, construction, maintenance, and operations.

CONSUMER NEEDS

NEW OPPORTUNITIES IN THE SILVER SEGMENT

VER THE NEXT 20 years, the 55-and-over segment of the population—sometimes referred to as the silver segment—is expected to account for a significant share of the growth in consumer spending. (See Exhibit 13.) This dynamic will be seen all over the developed world, and will be particularly strong in Germany (an estimated 86 percent of spending growth), Japan (67 percent), and the United States (50 percent).

To serve the growing 55-and-over segment properly, companies need to build a deep understanding of this heterogeneous age group, adapting their product portfolios and sales approaches to meet the segment's evolving needs.

Building an Understanding of Older Consumers

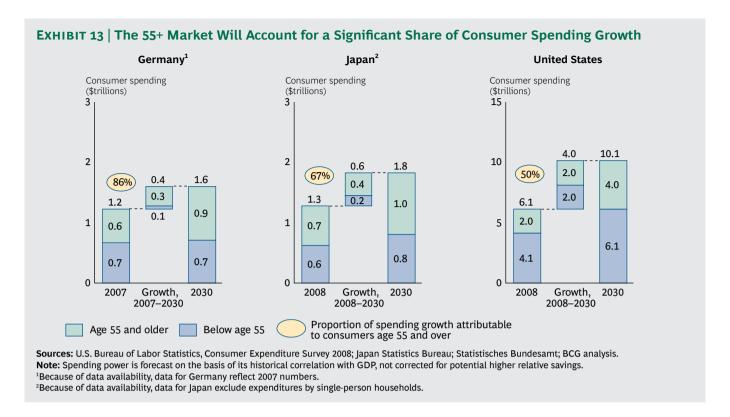
The very notion of what it means to be "old" is no longer static but dynamic. In the coming years, many people in their sixties and seventies may be perceived as still in their prime years—continuing to pursue their education, working in new careers, and maintaining an overall activity level not previously associated with those age brackets. Companies need to consider this when targeting older consumers.

Companies also need to realize that the silver segment of tomorrow will be different from the silver segment of today. For example, today's seniors are generally less active online than tomorrow's will likely be. At the same time, companies need to take into account the fact that aging typically brings increased physical limitations—and adjust their product offerings accordingly.

The very notion of what it means to be "old" is no longer a static one.

Broadly speaking, people in the silver segment have different priorities than younger age segments, owing to fundamental changes in preferences as they age. For example, proprietary BCG research indicates that older women are often more interested in peace, ease, and stability than in further achievement and recognition. Other research indicates that people in the silver segment are usually less driven by material possessions than at earlier periods in their lives—and more interested in new experiences, such as further study or travel to new places. They are also more content with their lives.

In addition, silver-segment consumers generally look for products that are functional, sim-



ple, accessible, and convenient. They also have a lower propensity to change brands.4 And although they do not want to be patronized in any way because of their age, they want their special needs to be acknowledged. Companies can do this in a way that emphasizes the positive rather than the negative aspects of aging.

In fact, the silver segment represents more than just one market or opportunity. There are large differences, for example, between the buying tendencies of people in the 55-to-65 age bracket (many of whom are still working) and those in the 65-to-75 and 75-to-85 brackets. And segmentation is a matter of not just age but also financial resources, education, mobility, location, attitude, and overall health, among many other elements.

Companies wishing to find ways to serve the rapidly growing silver segment should undertake comprehensive, qualitative consumer research in order to identify the forces that motivate these consumers, formulate ways to meet their evolving needs, and set a goal to fully capture the opportunity that demographic shifts present. And focusing on the silver segment is only part of the task; the other part is carrying out similar research

with younger people (such as the 45-to-55 age group) in order to develop value propositions for the future silver segment.

A simple repackaging will not be enough to attract older consumers.

Adapting Product and Sales Approaches

Armed with fresh information about the preferences of the burgeoning 55-and-over age segment, companies need to review their product portfolios. Some current offerings may be ill suited to this segment, and a simple repackaging will not be enough to attract older consumers. A new-product-development process that is efficient and age appropriate can help companies bring innovative products and services to the market that are designed specifically for older buyers.

Moreover, companies should review their channel strategies to ensure that they are

ADDRESSING CONSUMER NEEDS

Although many large companies have not yet taken steps to adapt their portfolios of products and services to the needs of the burgeoning silver segment, some companies, such as those mentioned below, have undertaken meaningful initiatives.

At NTT DoCoMo, Designing Phones for Seniors. In Japan, NTT DoCoMo introduced a new mobile phone for seniors by using multiple new-product-development, marketing, and sales levers. First, the company developed a partnership with a handset manufacturer to design and produce a senior-friendly phone with larger number and letter keys, a larger display screen, and voice-activated features. NTT DoCoMo then extensively researched the content that was most in demand by the silver segment and worked with providers to furnish that content.

NTT DoCoMo also researched the most opportune moment to introduce potential customers to the new offering—finding that an excellent time to explain things was on bus tours catering to seniors.

Later, in order to help seniors learn how to use the phone, NTT DoCoMo implemented in-store classes in which trained personnel instructed customers on the ins and outs of the most widely used applications that the phone offered. Finally, the company collaborated on mobile Internet service products with organizations that are heavily involved with the silver segment—such as those in the health care and insurance industries. NTT DoCoMo's innovative thinking and crisp execution offer a vivid illustration of the ways in which companies can capture the opportunities that the burgeoning silver segment presents.

At Ford, Exploring Physical Limitations with a "Third-Age Suit." In an attempt to better understand the physical limitations of older drivers, as well as learn how to design automobiles that are both more comfortable and more functional, Ford Motor Company developed a jumpsuit for car designers to wear that simulates the effects of aging. The outfit adds up to 30 years to the wearer's age by stiffening the movement of the knees, elbows, ankles, and wrists. The suit also simulates a thicker midsection by adding material around the waist. Finally, thick gloves reduce the sense of touch, and scratched, yellow-tinted goggles simulate eye cataracts.

Ford says that the suit has helped the company design automobiles that are easier to get into and out of and more comfortable in general to operate, and whose controls are easier to read and

compatible with the needs of the silver segment. Where do these consumers spend their time? What percentage are Internet savvy? Do they prefer face-to-face advice, or are they happier with the stay-at-home ease of an online channel? Are they comfortable taking advice and counsel from people in their twenties or thirties or do they require customer service personnel to be of a certain age? What exactly are they looking for in their shopping experience?

It is important to note that future members of the silver segment may not accept solutions that worked for their parents. There is thus a real need to create a whole new generation of products and services to handle challenges related to housing, health care, everyday purchases and activities, and other domains. (See Exhibit 14.) In the U.S. alone, the market opportunity for people aged 65 and older has been estimated at \$1.4 trillion for companies in diverse industries, and many of the new offerings are truly innovative. (See the sidebar "Addressing Consumer Needs.")

NOTE

4. "Why Do Older Consumers Buy Older Brands?" *Journal of Marketing*, Vol. 74 (July 2010).

reach. "With the third-age suit," the company has said, "we believe we have an advantage in knowing what that large demographic group [older drivers] demands." Similar suits are now being used by other automobile manufacturers—and also by other industries. Kimberly-Clark, for example, has started to use such a suit to train retailers to assess the experience of older customers in shopping for their products.

At Kaiser's Supermarkets, Making Shopping Easier. Kaiser's, one of Berlin's largest supermarket chains and part of the Tengelmann Group, has developed stores designed specifically for senior citizens. Some of the special features include brighter lighting, shelves fitted with steps, aisles that are extra wide, and nonslip floors. The stores are also equipped with lighter and easier-to-push trolleys, magnifying glasses on shelves and trolleys, larger

Source: BCG analysis.

signs and labels, and emergency call buttons. The company says that targeting older consumers has been successful, as reflected by 30 percent higher revenues and greater customer satisfaction. Other chains, such as Lawson convenience stores in Japan, have made similar efforts. Lawson has lowered shelves, enlarged price tags, and added tables where older customers can sit, chat with others, and take a break from shopping.

At Unilever, Emphasizing the Beauty of Aging. Dove, a personal-care brand of Unilever, started a "Beauty Has No Age Limit" campaign that emphasized different types of beauty and self-acceptance. The overall message was that "age is part of what makes women beautiful, not an imperfection that needs to be corrected." Through this campaign, Dove increased its market share in all five of its major beauty categories.

EXHIBIT 14 | People 65 and Older Will Need Innovative New Products

Needs and related spending Potential opportunities Safety/Security New housing Housekeeping Specialized educational videos forms robot Travel and Nursing home tourism Nursing Behavior monitoring Management fees on assets Personal Hospital inpatient histories robot system and service Consumer Financial solutions spending, Companionship Interest on debt age 65+ Prescriptions Medical services Other medical Artificial Simple Anti-aging Integrated medical records muscle phone cream Assistance for physical decline Emergency solution Hearing Financial Commu-Electric planning vehicle/ nication mobility service robot

TOWARD A NEW REALITY

T IS CLEAR THAT global aging will pose significant risks for companies in virtually all major industries. Yet myriad opportunities will also arise. Consider a scenario in which financial capital will be broadly available and can be used at relatively low cost to invest in the most important scarce resource: human capital. This human capital might be willing (or even prefer) to continue working in later stages of life as long as suitable jobs and compensation were being offered by employers. Under such a scenario, would it not be possible to achieve annual productivity growth in the developed world that is higher than the historical 1.8 percent level—and even higher in RDEs—thereby bolstering GDP and helping to fund the growing group of retirees? The bottom line is that the major demographic shifts to come do not call for gloom and doom but simply for a different, fresh, and fully informed perspective. (See Exhibit 15.)

Recent research by the Economist Intelligence Unit shows that most company executives are aware of the demographic dynamics currently in play. (See Exhibit 16.) More than 80 percent believe that the changes to come are very significant. Nearly 40 percent perceive global aging as mainly a business opportunity, while only 11 percent see it as mainly a challenge or risk, with about 32 percent of surveyed companies saying that global aging presents both opportunities and

risks. Yet the same survey showed that, for any given business function, fewer than 50 percent of companies are taking global aging into account in their strategic planning.

This survey is consistent with our view that although many organizations are aware that they will face challenges related to global aging in the coming years, they either do not perceive the potential magnitude of the problem or are too consumed by shorter-term imperatives to act. As a result, far too few companies are taking sufficient steps to prepare for the impact of demographic realities.

Companies either do not perceive the magnitude of global aging or are too consumed by shorter-term imperatives to act.

To be sure, whether global aging patterns truly represent a risk or an opportunity has a lot to do with how soon companies recognize the changes to come and take steps to mitigate potentially negative consequences. The most proactive companies have grasped the situa-

EXHIBIT 15 | Global Aging Offers Opportunities to Companies That Can Adapt

Supply side

Labor

The need and opportunity to invest in people is greater than ever

- Educate and retrain older workers instead of "getting rid of them" early
- Create appropriate jobs for older workers (lower time and energy commitment)



Growth



Demand side

In the developed world, the GDP impact of aging can be offset if annual productivity growth increases from ~1.8% to ~2.4%

 Cheap capital and scarce labor will create unprecedented opportunities

In RDEs, the opportunity to catch up with the developed world is greater than ever

The free flow of knowledge and the large capital supply will accelerate growth





Capital

Capital may be cheap in real terms (even though inflation could be

· Capital can be used to invest in the most scarce resource: people





In all markets, there is a huge opportunity to adapt to the needs of the older consumer

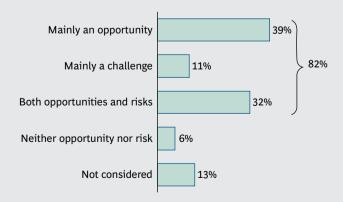
- Companies should focus more on functionality and less on "image"
- Serving this segment well will be a crucial element of growth in the

Source: BCG analysis.

EXHIBIT 16 | Most Companies Are Aware of the Demographic Dynamics—but Not Enough Are Actively **Planning for Them**

More than 80 percent of companies see increased longevity as a business opportunity or risk...

If your company has thought about the implications of increased average longevity, does it view this change as mainly an opportunity or mainly a challenge for the business over the next five years?



...but less than 50 percent factor increased longevity into their strategic planning

In which of following business functions, if any, does your company take increased longevity into account? Select all that apply.



Source: Economist Intelligence Unit, A Silver Opportunity? Rising Longevity and Its Implications for Business, 2011.

tion and are taking appropriate steps: rebalancing their portfolios by region to leverage areas of growth, understanding and modifying pension liabilities, completing workforce productivity and capacity analyses, and acting to ensure that their strategies will succeed in (and benefit from) a potentially low realinterest-rate environment.

Moreover, some companies have accurately perceived demographic shifts as a rare opportunity to drive innovation by creating new sets of products and services that will meet the needs of a rapidly growing consumer group—one that may maintain a relatively high degree of vitality for decades to come. Indeed, it has been said that the baby boom generation has shown itself to be capable of

reinventing itself at different life stages. It may now reinvent what being older means—at least in comparison with previous generations. Companies in most industries will have the task of coming up with new concepts and solutions.

Ultimately, despite the risks and pitfalls that global aging will present, there are many opportunities to be seized as well. With the right perspective and a willingness to take action, the potential negative consequences of demographic patterns can be turned into positive outcomes. Companies that recognize the magnitude of the changes to come—and that take the necessary steps not just to cope but to benefit—will best adapt to and profit from the new reality.

FOR FURTHER READING

The Boston Consulting Group publishes other reports and articles that may be of interest to senior executives. Recent examples are listed here.

Seven Ideas for Closing the Talent Gap

An article by The Boston Consulting Group, August 2011

Turning the Challenge of an Older Workforce into a Managed Opportunity

A report by The Boston Consulting Group, August 2011

Building on Success: Global Asset Management 2011

A report by The Boston Consulting Group, July 2011

Navigating the New Consumer Realities: Consumer Sentiment 2011

A report by The Boston Consulting Group, June 2011

Shaping a New Tomorrow: Global Wealth 2011

A report by The Boston Consulting Group, May 2011

Social Media: The Opportunities for Insurers

An article by The Boston Consulting Group, May 2011

Making Your Company Inflation Ready

A Focus by The Boston Consulting Group, March 2011

Operational Excellence in Retail Banking: How to Become an All-Star

A Focus by The Boston Consulting Group, February 2011

Winning After the Storm: Global Payments 2011

A report by The Boston Consulting Group, February 2011

The Road to Excellence: Global Retail Banking 2010/2011

A report by The Boston Consulting Group, December 2010

Creating People Advantage 2010: How Companies Can Adapt Their HR Practices for Volatile Times

A report by The Boston Consulting Group and the World Federation of People Management Associations, September 2010

Megatrends: Tailwinds for Growth in a Low-Growth Environment

A Focus by The Boston Consulting Group, May 2010

Stimulating Economies Through Fostering Talent Mobility

A report by the World Economic Forum in collaboration with The Boston Consulting Group, March 2010

Strategic IT Workforce Management: Building Tomorrow's Key Capabilities Today

An article by The Boston Consulting Group, March 2010

NOTE TO THE READER

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